

**ARIZONA GAME AND FISH DEPARTMENT  
HABITAT PARTNERSHIP COMMITTEE  
HABITAT ENHANCEMENT AND WILDLIFE MANAGEMENT PROPOSAL**

Game Branch / HPC Project Number: 15-508

**PROJECT INFORMATION**

**Project Title:** North Tumbleweed Pasture-Bonita Grasslands Restoration Phase 6

**Region and Game Management Unit:** GMU 32

**Local Habitat Partnership Committee (LHPC):**  
• Safford

**Was the project presented to the LHPC?**  
**YES**[X] **NO**[]

**Has this project been submitted in previous years?** YES[] **NO**[X]

**If Yes, was it funded?** YES[] **NO**[] → **Funded HPC Project #(s):**

**Project Type:** Grasslands Restoration

**Brief Project Summary:**

The overall project (Bonita Grasslands Restoration), initiated in 2010, is in the sixth year of a 20,000 acre, landscape scale, grassland restoration project in the Bonita area within GMU 31 and 32. To date this project has involved funding and grants from the Natural Resources Conservation Service (NRCS), Arizona Department of Agriculture (ADA), US Fish and Wildlife Service (USFWS), Arizona Game and Fish Department (AGFD), Habitat Partnership Committee (HPC) and National Fish and Wildlife Foundation (NFWF). During the initial planning stages of this landscape project, it was foreseen to require up to 10-15 years to complete the entire 20,000 acres, depending upon available funding and cooperating landowners and lessees. To date approximately 13,000 acres have been treated.

This project (**North Tumbleweed Pasture**) will reclaim 1160 acres of historic semi-desert grassland through the use of mechanical grubbing of live mesquite trees and the piling of those mesquite carcasses for later removal. The Tumbleweed Pasture consists of approximately 2400 acres of State Trust leased lands divided by High Creek Road. A similar project for the south Tumbleweed Pasture will be submitted in 2017.

The removal or significant reduction in mesquite trees within the treated area will result in overall improved range conditions, improve water infiltration and reduce soil erosion. The improved range/habitat conditions are the biggest part of restoring the grassland ecosystem benefiting all grassland associated wildlife species.

**Big Game Wildlife Species to Benefit (% benefit per species) :** Pronghorn, Mule Deer and Scaled Quail

**Implementation Schedule** (Month/Day/Year):

Project Start Date: December 2016

Project End Date: June 2017

**Environmental Compliance:**

NEPA Completed: Yes[] No[] N/A[X]

Projected Completion Date: Project occurs on AZ State Trust Lands

State Historic Preservation Office - Archaeological Clearance:  
(Provide Attachment)

Yes[X] No[] N/A[]

Projected Completion Date: CRS completed June 2015, currently in consultation with SHPO

Arizona Game and Fish Department EA Checklist: N/A[]

To be Completed by: J. Bacorn

Projected Completion Date: EAC Submitted September 2015

<b>PROJECT FUNDING</b>		
<b>Special Big Game License Tag Funds Requested:</b>	\$40,000.00	
<b>Cost Share or Matching Funds:</b>	\$30,000.00 (NFWF) \$50,000.00 (LCCGP) \$171,000.00 (WHEI)	
<b>Total Project Costs:</b>	<b>\$ 291,000.00</b>	
<b>PARTICIPANT INFORMATION</b>		
<b>Applicant</b> (please print): John Bacorn	<b>Address:</b> AZ Game and Fish Department 555 N. Greasewood Road Tucson, AZ 85705	<b>E-mail:</b> jbacorn@azgfd.gov
<b>Telephone:</b> 520-591-1485		<b>Date:</b> August 15, 2015
<b>AGFD Contact and Phone No.</b> (If applicant is not AGFD personnel):		
<b>Project has been coordinated with:</b> Jeff Homack (ASLD Lessee), Cody Hatfield (ASLD), John Bacorn (AGFD), Rana Tucker (AGFD), Johnathan Odell (AGFD) and John Millican (AAF).		

#### **NEED STATEMENT – PROBLEM ANALYSIS:**

Large blocks of land, historically semi-desert grasslands in the Sulphur Springs and San Bernardino Valleys of Southeastern AZ are declining in size and connectivity between them is being lost due to the heavy encroachment of mesquite and other shrub species. Approximately 36% of historic grasslands within the Apache Highlands ecoregion (SE AZ, SW NM, and Northern States of Sonora and Chihuahua Mexico) have been converted to varying degrees of shrublands (Gori, D.F., and C.A.F. Enquist. 2003).

Mesquite invasion in grasslands alters the entire grassland ecosystem; it alters the water infiltration, and changes the vegetation composition such as grasses, forbs, shrubs and subshrub (browse) species. This change in vegetation changes the wildlife species composition normally associated with grasslands as well. Grassland associated wildlife such as pronghorn antelope, scaled quail, desert box turtle, Botteri's Sparrow, Cassin's Sparrow, meadowlark and loggerhead shrike are being negatively impacted by this loss of habitat due to habitat degradation and fragmentation.

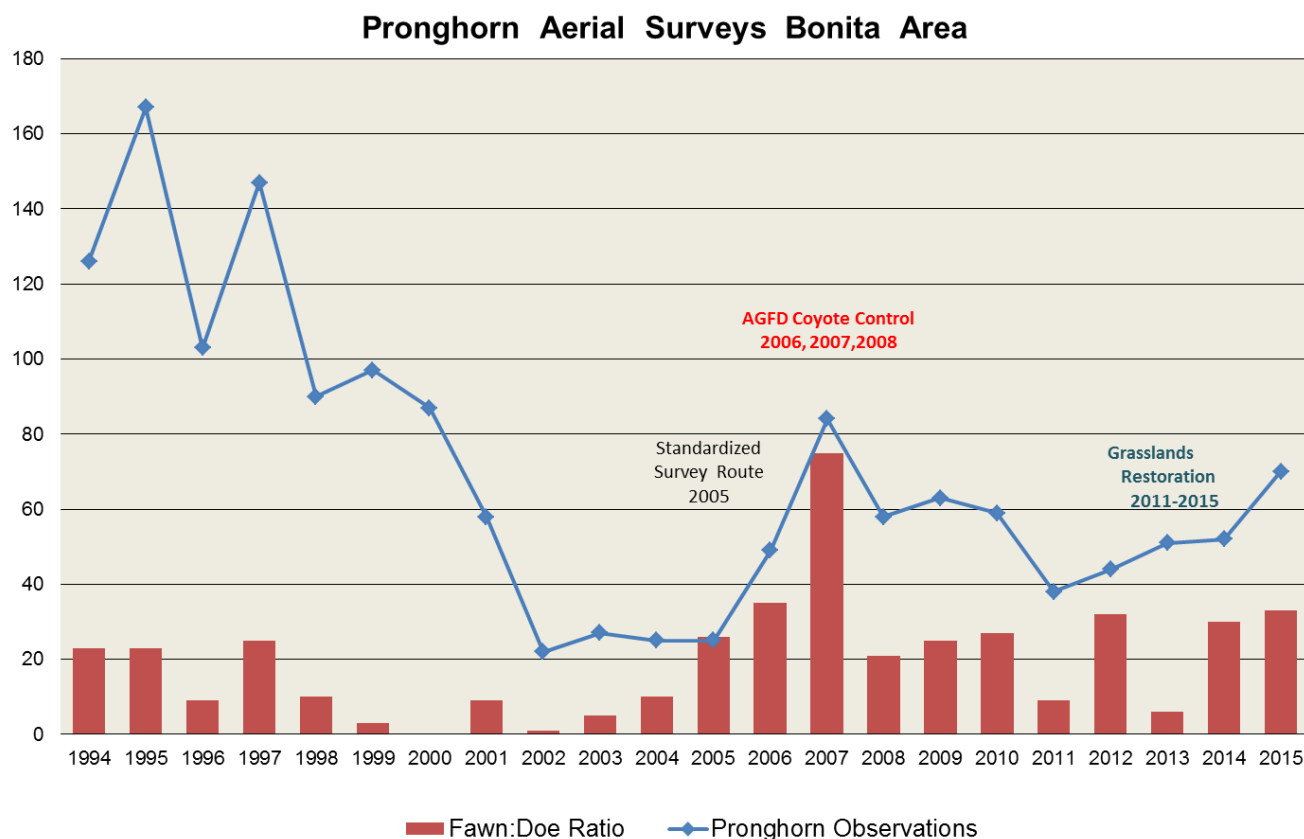
*“The antelope were once very abundant throughout the entire Sulphur Springs Valley, but now inhabit the grassland north of Willcox, east of the Galiuro and Winchester Mountains and west of the Pinalenos. A portion of the population also ranges on Allen Flat to the southwest of the Winchester Mountains. Raymond Wildlife Area-Chavez Pass antelope were released here (22 in 1943, 6 in 1944, 40 in 1945)”* from Region V Pronghorn Antelope Management Plan.

During the early to mid-1990's over 100 antelope were observed during AGFD aerial surveys within the Bonita area. Beginning around 2000 the number of animals observed began declining and during the 2004 and 2005 surveys, only 25 animals were observed. During this time period fawn to doe ratios declined. From 1999 to 2004, the average fawn to doe ratio was 5:100. In 2006, 2007 and 2008, AGFD contracted with Wildlife Services to fly aerial coyote control within the Bonita area, observation numbers increased to 49, 84 and 58 animals and fawn ratios were 35, 75 and 21 fawns per 100 does during the three years of aerial coyote control. Since the inception of the grasslands restoration efforts in 2011, the pronghorn observations have

steadily increased to 70 animals.

The Western Quail Management Plan 2010, recommend assessing shrub encroachment, protecting and enhancing desert grasslands and reestablishing native bunchgrass habitats as habitat objectives for improving Scaled Quail habitats.

The removal or significant reduction in mesquites within the treated area and improved range management will result in overall improved range conditions, improving water infiltration and reducing soil erosion. This will go a long way toward restoring the grassland ecosystem benefiting Pronghorn antelope, Scaled quail and all grassland associated wildlife species. The associated ranch on which this project is proposed, has a CRMP (Coordinated Resource Management Plan) developed by the Natural Resource Conservation Service (NRCS), and brush removal was recommended in this plan to address natural resource concerns on the ranch.



## **PROJECT OBJECTIVES:**

- 1) Main Objective is to improve/restore the desert grassland ecosystem.
- 2) Improve water infiltration, reduce soil erosion and increase the native grass and forb composition.
- 3) Improve range/habitat conditions for all grassland associated wildlife species, especially for Pronghorn antelope and Scaled quail.
- 4) Improve range conditions for the livestock operations.

## **PROJECT DESCRIPTION AND STRATEGIES:**

- 1) Mechanically remove/reduce mesquite densities within project area by 85-95%.
- 2) Remove 90-95% of the mesquite carcasses by piling and later burning.
- 3) Leave at a maximum one or two mesquite carcasses every 100 yards and minimize disturbance to yucca plant species for scaled quail habitat.
- 4) Defer grazing in project area for a minimum of 2 growing seasons to increase seed base of native grasses and forbs.
- 5) Implement CRM (Coordinated Resource Management) plans to improve overall range conditions.

Ideal pronghorn habitat would consist of open grasslands with a mixture of grasses, forbs and low shrubs averaging between 10 and 18 inches in height. Canopy cover and shrubs above 30 inches should be considerably less than 20% of total cover for the area. This project will remove 85-95% of the mesquite trees with the use of an excavator, leaving scattered larger trees for shade and cover for pronghorn, mule deer and livestock and scattered shrubs less than 30 inches for Scaled quail cover. The uprooted mesquite carcasses (90-95%) will be removed by piling in close proximity to their originally location and burned at a later date. The removal of the mesquite carcasses after grubbing is important in relation to Pronghorn antelope's "visibility" and their ability or willingness to utilize the treated area.

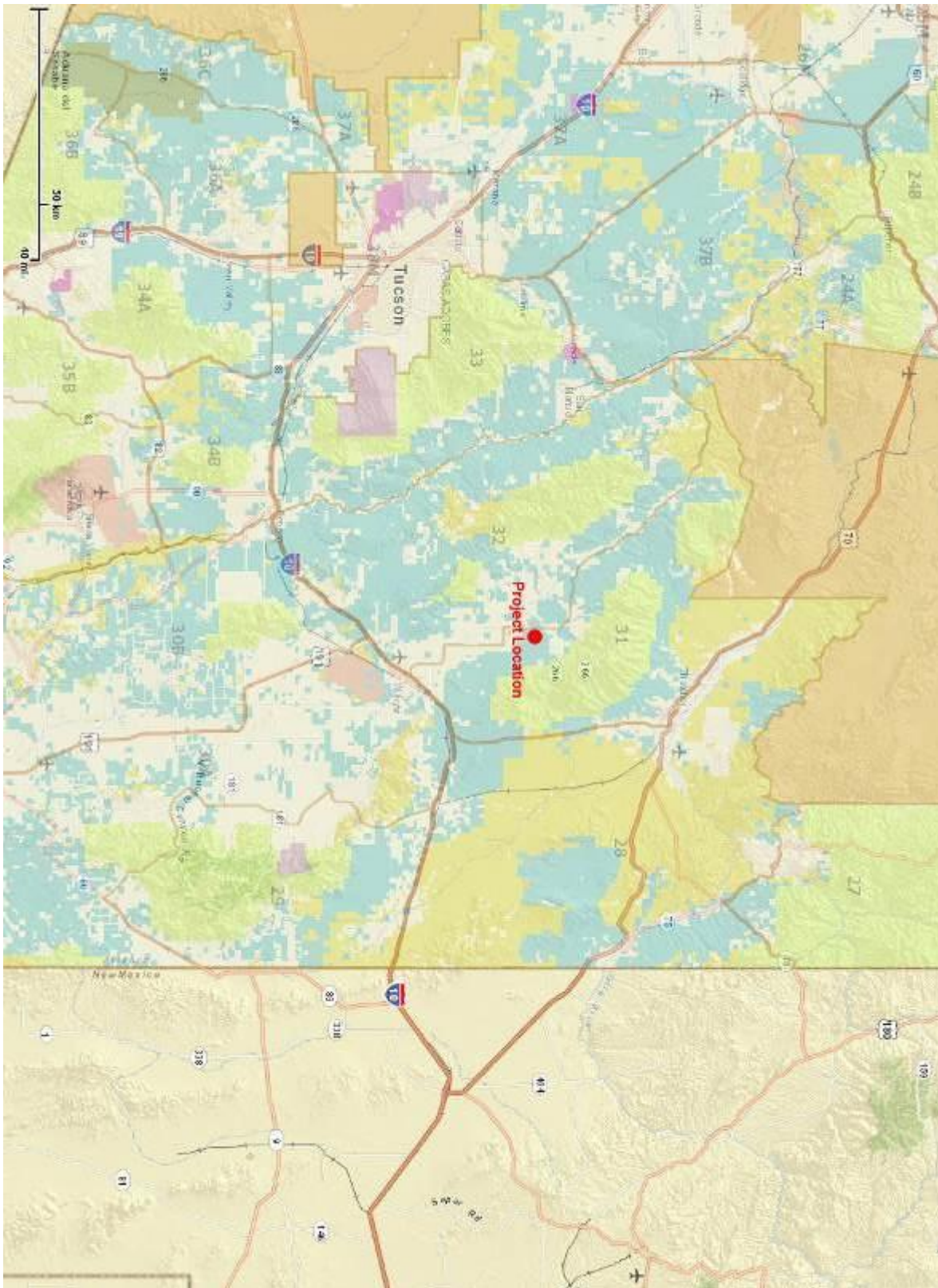
Ideal Scaled quail habitat would consist of grassland type habitat with scattered low shrubs, bunchgrasses and a variety of native grasses and forbs. Tree canopy of < 10%, grass canopy cover of > 26% and short (< 22 in) low shrub cover (K.D. Bristow and R.A. Okenfels). Scaled quail tend to avoid complete open grasslands without some shrub cover. Low shrub cover is important for hiding from predators and resting areas. To provide habitat conditions for scaled quail, 1-3 cover areas per acre will be provided by either low mesquite shrubs (<30 inches) or an uprooted mesquite carcass.

For additional improvement in range conditions and providing an increased grass and forb seed base, the treated area will be rested from cattle use during 2 consecutive growing seasons and NRCS CRM ranch plans will be followed. Spot seeding of a mixed native grass/forb mix will occur underneath selected mesquite carcasses.

The SLD lessee will apply for a State Land Department treatment application and will be responsible for hiring the contractor to conduct the treatment work.

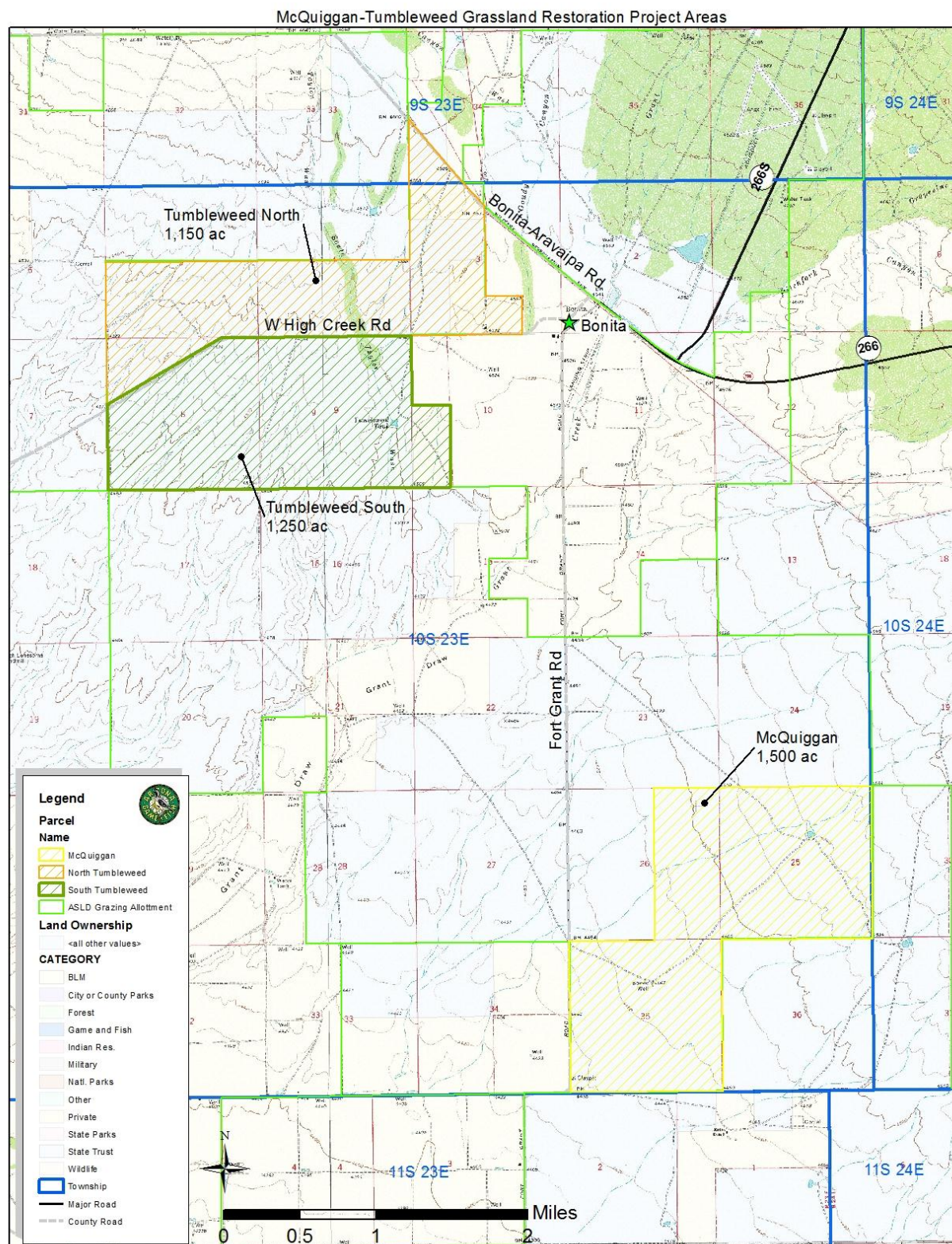
## PROJECT LOCATION

Region 5, Game Management Unit 32, located approximately 30 miles north of Willcox in Graham County.



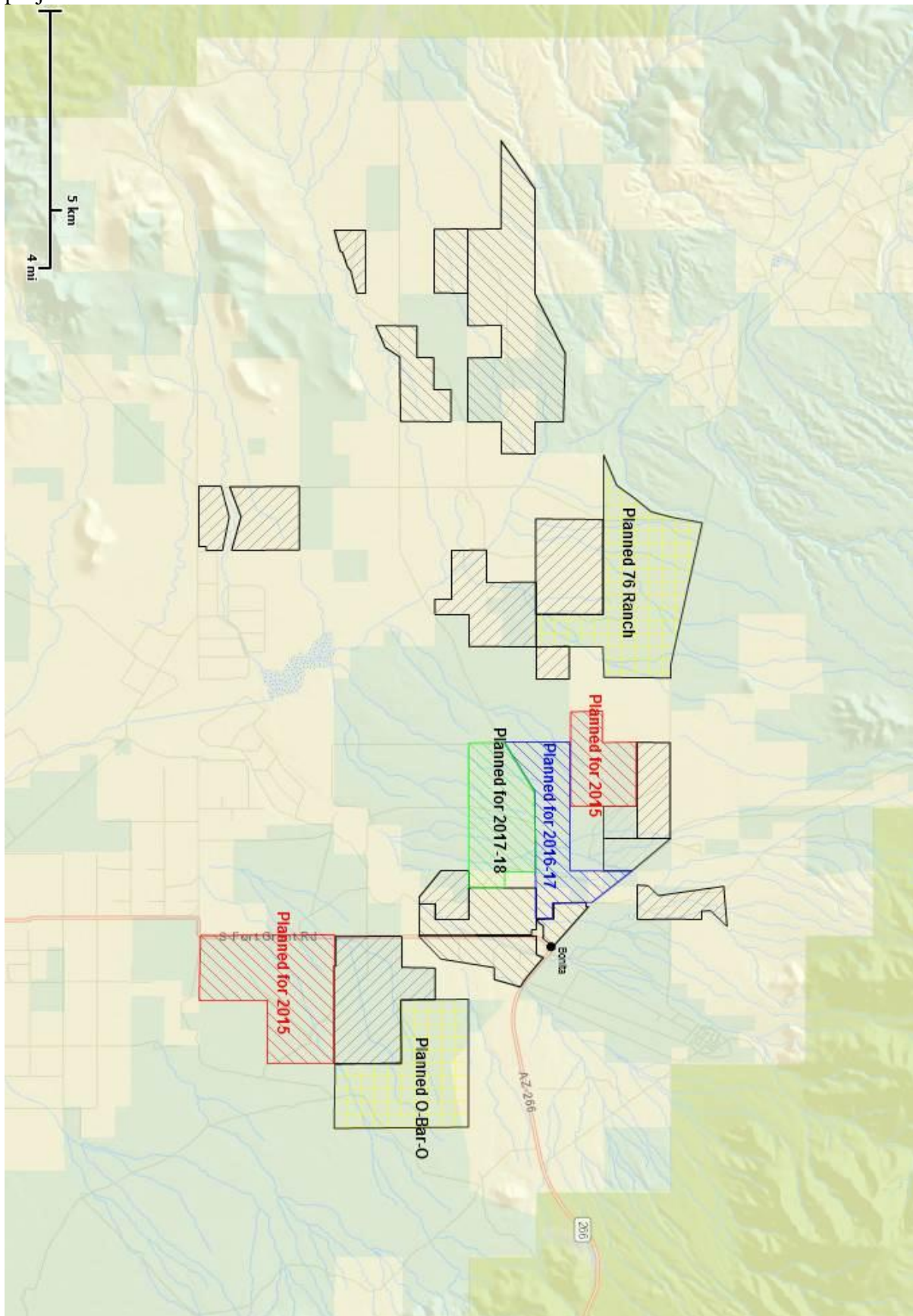


The project site (North Tumbleweed Pasture) is 1150 acres comprising of 95% State Trust land and 5% deeded land, it is located in T10S, R23E, sections 3, 4, and 5. Coordinates include; 32.587265/109.982245, 32.599008/109.982350, 32.607580/109.990805, 32.594315/109.990775, 32.594375/110.025090, 32.580305/110.024945, 32.586960/110.011350.





Project location for 2016-17 in relation to completed and future planned grassland restoration project.



**LAND OWNERSHIP AT THE PROJECT SITE(S):**

(If the project area is private property, please state specifically and provide the landowner's name)

- Approximately 95% of the project site is State Trust land and the other 5% is deeded property.

*IF PRIVATE PROPERTY, IS THERE A COOPERATIVE BIG GAME STEWARDSHIP or LANDOWNER AGREEMENT BETWEEN THE LANDOWNER AND THE DEPARTMENT?*

YES[X] NO[] N/A[]

**HABITAT DESCRIPTION:**

According to the NRCS Soil map website, the two dominant ecological sites are Sandy Loam and Clay Upland. Historically these ecological sites consisted of Giant Sacaton grasslands in the lower sandy loam areas and Tabosa grasslands in the upper clay uplands.

Currently the project area is remnant semi-desert grassland with a heavy to medium invasion of mesquite cover story and a reduced grass understory community and increasing soil erosion occurring within the heavier mesquite dominated areas. Elevation is between 4400-4500 feet.

Utilizing aerial imagery, the mesquite densities in the project area is estimated to have 365 acres (30%) heavy, 615 acres (50-55%) medium and 180 acres (15-20%) light. NRCS categorizes tree densities as heavy (>150 per acre), medium (75-150 per acre) and light (<75 per acre).

**ITEMIZED USE OF FUNDS:**

John Bacorn and lessee Jeff Homack met with Jeff's contractor, based upon the soil type, tree density and overall size of the project, the contractor agreed to perform the treatment at the cost of \$250.00 per acre.

Consulting with NRCS, BLM and two seed contractors for a native grass and forb seed mix for spot seeding selected areas within the project area.

Cultural Resource Surveys (CRS) have already been completed, contracted by AGFD. The CRS Report is currently in consultation.

Practice	Rate	Size	Total Costs
Brush Removal and Carcass Piling	\$250.00/acre	1160 ac	\$290,000.00
Native Grass/forb seed mix	\$20.00-\$30.00/lb.	40 lb.	\$1,000.00
			<b>\$291,000.00</b>

Special Big Game License Tag Funds:

\$40,000.00

Cost Share or Matching Funds (for volunteer labor rates please refer to the worksheet below)

\$251,000.00



Funding sources will include Habitat Partnership Committee (HPC), National Fish and Wildlife Foundation (NFWF) grant, Arizona Department of Agriculture's Livestock and Crops Conservation Grant Program (LCCGP) and Arizona Game and Fish Department's Wildlife Habitat Enhancement Initiative (WHEI).

Item	Funding Source	HPC Funds	Cost Share Funds	Total Costs
Brush Removal and Carcass Piling	HPC	\$40,000.00		\$40,000.00
Brush Removal and Carcass Piling	NFWF		\$30,000.00	\$30,000.00
Brush Removal and Carcass Piling	LCCGP		\$50,000.00	\$50,000.00
Brush Removal and Carcass Piling	WHEI		\$170,000.00	\$170,000.00
Native Grass and Forb Seed Mix	WHEI		\$1,000.00	\$1,000.00
		<b>\$40,000.00</b>	<b>\$251,000.00</b>	<b>\$291,000.00</b>

**LIST COOPERATORS AND DESCRIBE POTENTIAL PARTICIPATION:**

NRCS has written up the Conservation Resource Management (CRM) Plan and responsible for assisting with implementation of the CRM plans. Jeff Homack, ASDL lessee will contract out the treatment and responsible for removing or burning the mesquite piles after the treatment has been completed.

**WOULD IMPLEMENTATION OF THIS PROJECT ASSIST IN PROVIDING, MAINTAINING, OR FACILITATING RECREATIONAL ACCESS?**

YES[] NO[] N/A[X]

Access is already available through State Trust lands.

**PROJECT MONITORING PLAN:**

The treatment is expected to require 4-6 months to complete, depending upon climate conditions. Project completion and success will be monitored by AGFD employees, ASLD and the SLD lessee.

**PROJECT MAINTENANCE:**

The project area will be monitored annually by the lessee and/or AGFD. It is anticipated that there will not be 100% mesquite mortality and there may be some re-sprouting of mesquite in subsequent years. This has been discussed between all parties involved. Maintenance may require application of herbicide of individual plants every few years to maintain the open grassland habitat type desired and may involve subsequent HPC proposals.

**PROJECT COMPLETION REPORT TO BE FILED BY:** John Bacorn (AGFD)

**TREE CLEARING/REMOVAL PROJECTS** (please use the worksheet below):

**ATTACHMENTS:**

(Please provide cultural clearance documentation from land management agency, e.g., FONSI, Inventory Standards, etc. Also attach any project pictures)

Current Habitat Conditions in Project Area.





Examples of previous grassland restoration projects in the Bonita Area.







## **ARIZONA GAME AND FISH DEPARTMENT** **TREE CLEARING/REMOVAL WORKSHEET**

**PROJECT TITLE:** North Tumbleweed Pasture

- 1) **What is the estimated acreage of the project?** 1160 acres
- 2) **How are the trees going to be cleared? (agra axe, chain saw, grubbing, push, chaining):**  
Mechanical, use of an excavator to pull out tree and root system.
- 3) **What is the estimated number of trees per acre?**  
365 acres @ 150 trees per acre = 54,000 trees  
615 acres @ 75 trees per acre = 46,000 trees  
180 acres @ 25 trees per acre = 4,500 trees
- 4) **Describe trees to be cleared (species, estimated diameter, single stem, multi-stem):**  
Only mesquite species will be cleared, diameter will vary from 1 inch up to 10-12 inches. Most trees with a diameter greater than 12 inches will be left to provide shade and cover for wildlife and livestock.
- 5) **Describe terrain (slope, soil type, rocks)**  
Uplands, sandy loam type soil with less than 20-25% slope.
- 6) **Please list any special land management status for the project site (e.g. Wilderness, National Park, National Monument). If private land, list landowner.**  
No special status for any of the project site, project site is located on State trust or deeded lands.
- 7) **Please provide the following information about access to the proposed site:**  
Type of access (mark one): ☒ 2x4 vehicles    ☐ 4x4 only    ☐ Foot only\*\*  
  
\*\*If foot access only: Distance in miles:    Approx. hiking time:  
  
Does access to this site require crossing private or tribal lands? YES ☐ NO ☒  
Site is accessible through state trust lands or deeded land, approximately 5% of the project site is located on deeded lands.  
  
Is the site relatively accessible for tree removal equipment? YES ☒ NO ☐  
  
Please describe any restrictions to public access:  
No restrictions to the state trust lands or deeded lands with the exception of the vicinity of the church or cemetery.